ENTOMOLOGICAL NEWS

MAY 1959

Vol. LXX **No. 5**

CENTENNIAL YEAR
THE AMERICAN ENTOMOLOGICAL SOCIETY
1859—1959

CONTENTS

The Centennial Celebration 113
Crabill—Himantariidae, list, key, and new genus 117
Powell—A new species of Chionodes in California 127
Chemsak—A new genus of Mexican Cerambycidae 131
Papp—A new name in the clerid genus Lebasiella 133
Krombein—Biological notes on Prochelostoma philadelphi 135
Heinrich—Ichneumon koebelei, selection of lectotype 136
Judd—Sinea diadema biting a human 137
Review—A Century of Biological Research 138

PUBLISHED MONTHLY, EXCEPT AUGUST AND SEPTEMBER, BY
THE AMERICAN ENTOMOLOGICAL SOCIETY
PRINCE AND LEMON STS., LANCASTER, PA.
AND
1900 RACE STREET, PHILADELPHIA 3, PA.

Subscription, per yearly volume of ten numbers: $5.00 domestic; $5.30 foreign; $5.15 Canada.
Second-class postage paid at Lancaster, Pa.

ENTOMOLOGICAL NEWS

ENTOMOLOGICAL NEWS is published monthly, excepting August and September, by The American Entomological Society at Prince and Lemon Sts., Lancaster, Pa., and the Academy of Natural Sciences, 1900 Race Street, Philadelphia 3, Pa., U. S. A.

PHILIP P. CALVERT, Editor Emeritus. R. G. SCHMIEDER, Editor. Editorial Staff: H. J. GRANT, JR., E. J. F. MARX, M. E. PHILLIPS, and J. A. G. REHN.

Subscription price, per yearly volume of 10 numbers: Domestic, $5.00; Foreign, $5.30; Canada, $5.15—U. S. Currency.

SUBSCRIPTIONS: Communications and remittances to be addressed to **Entomological News, 1900 Race Street, Philadelphia 3, Pa.**

ADVERTISEMENTS: Rate schedules available on request. Address, **Fred B. Jacobson, Advertising Manager, Entomological News, 1900 Race Street, Philadelphia 3, Pa.**

MANUSCRIPTS and all communications concerning same should be addressed to **R. G. Schmieder, Zoological Laboratory, University of Pennsylvania, Philadelphia 4, Pa.**

The receipt of all papers will be acknowledged and, if accepted, they will be published as soon as possible. Articles longer than eight printed pages may be published in two or more installments, unless the author is willing to pay the cost of a sufficient number of additional pages in any one issue to enable such an article to appear without division.

ILLUSTRATIONS: Authors will be charged as follows: For text-figures, the cost of engraving; for insert plates (on glossy stock), the cost of engraving plus printing. Size limit, when printed, 4 × 6 inches. All blocks will be sent to authors after printing. It is not advisable to print half-tones as text-figures.

TABLES: The cost of setting tables will be charged to authors.

SEPARATA: Members of the American Entomological Society may elect to receive, gratis, 25 offprints of their contributions. These will be "run-of-form," without removal of extraneous matter.

Those members desiring more than 25 separates, and all non-members, will receive no gratis copies. They must obtain all their separates (as reprints, with extraneous matter removed) from the printer at the prices quoted below. Authors must place their order for such separates with the editor at the time of submitting manuscripts, or when returning proof.

Copies	1–4 pp.	5–8 pp.	9–12 pp.	13–16 pp.	17–20 pp.	Covers
50	$3.95	$6.33	$ 9.89	$10.28	$13.44	$4.31
100	4.74	7.51	11.86	12.65	16.21	5.89
Add'l 100	1.58	2.36	3.94	4.74	5.54	3.16

Plates printed one side: First 50, $3.15; Additional 100's, $2.37.

Transportation charges will be extra.

ENTOMOLOGICAL NEWS

VOL. LXX MAY, 1959 No. 5

The Centennial Celebration American Entomological Society 1859–1959

On Thursday, March 26, 1959, the American Entomological Society held an open house, luncheon, and meeting in celebration of its 100th anniversary. Seventy-one members and guests were present.

At the open house, held from ten A.M. to noon, the insect collections were open for inspection as were the libraries of both the Society and the Academy of Natural Sciences of Philadelphia. Guests and visitors were welcomed by Mrs. Raymond Q. Bliss, Fred B. Jacobson and Harold J. Grant, Jr. Visitors to the insect collections were guided by Mrs. Margaret Cary in the Lepidoptera, James A. G. Rehn in the Orthoptera, Raymond Q. Bliss in the Coleoptera and Selwyn S. Roback in the Diptera and Hymenoptera.

In the Society meeting room an exhibit of some of its memorabilia was on display. This material was arranged and labelled through the efforts of Mrs. Judith Hurwitz and Richard F. Sivel. It included the Charter, several portraits of early members, old photographs, minutes of the first meeting (in the beautiful script of J. Frank Knight), the hand press first used to print its "Proceedings," an ivory gavel presented by Louis Schneider in 1860 (and still used by the presiding officer at stated meetings), lenses and instruments used by Cresson, Horn, and LeConte, and many other items. It was noted also that the tables and chairs now used in the meeting room date from 1862, from the time the Society occupied its quarters on Rodman Street. In the library, Maurice E. Phillips had prepared

an exhibit of outstanding interest consisting of rare and unusual volumes from the libraries of the Society and the Academy.

At one P.M., a luncheon was served in the main reading room of the Academy library. President Allen welcomed guests and members on behalf of the Society. Directly after luncheon, a regular meeting of the Society was convened. Several messages were received from other entomological societies and groups. Ashley B. Gurney conveyed the felicitations of the Entomological Society of America; Curtis W. Sabrosky, those of the Entomological Society of Washington; and John B. Schmitt, those of the New Jersey Entomological Society. Greetings were brought from the Eastern Branch of the Entomological Society of America by Reece I. Sailer, from the Entomological Department of the University of Massachusetts by Charles P. Alexander and from the Entomological Department of Pennsylvania State University by Bertil G. Anderson. A congratulatory telegram from Roscoe Hill, Chairman of the North Central States Branch of the Entomological Society of America was read.

There were brief messages from Miss Grace Ridings, great granddaughter of founding member James H. Ridings, and from James A. G. Rehn and Philip P. Calvert, both of whom were present at the 50th anniversary in 1909. Mr. Rehn recalled his association with Ezra T. Cresson, senior. He pointed out the great debt the Society owes to the industry of Cresson and to the numerous and important benefactions of Thomas B. Wilson. Dr. Calvert observed that a century seems a very long time until one has lived to within a dozen years of it, and then it seems a short time. He concluded with the optimistic wish that everyone present might live to be present at the 150th anniversary. Murray I. Cooper expressed the appreciation of the Society to the numerous individuals, members of the Society and staff of the Academy, who cooperated so generously in helping to make the celebration a success. Fred B. Jacobson reviewed briefly the present activities and status of the Society and its relationship with the Academy of Natural Sciences of Philadelphia. Neal A. Weber summed up the work of the Centennial

Committee, noting that one of its chief functions will be the production of a centennial number of the Society's "Transactions."

Dr. Weber introduced the four guest participants in a panel discussion on "The Role of Smaller Entomological Societies." They were: Charles P. Alexander, of the University of Massachusetts; John B. Schmitt, of Rutgers University; Ross H. Arnett, of the Catholic University of America; Curtis W. Sabrosky, of the United States National Museum (moderator). The panel discussion proved to be one of the most interesting features of the program. There was a lively informal discussion by the panelists and many comments and questions from the audience. There seemed to be general agreement that the smaller societies offer a number of advantages over the larger societies that will probably favor them for some time to come. However, they seem to be failing in the necessary function of attracting younger members in sufficient numbers to insure their continued existence. The opinion was advanced that this situation could be improved if members of these societies would devote part of their energies to guiding gifted high school students, and even younger persons, who have a latent interest in natural science.

The following list of members and guests in attendance is, regrettably, by no means complete. Entomological News would be glad to hear from anyone who was present but whose name is not here included.

Dr. and Mrs. Charles P. Alexander
Dr. and Mrs. Harry W. Allen
Dr. Bertil G. Anderson
Dr. Ross H. Arnett
Mr. Vernon A. B. Bell
Mr. and Mrs. Raymond Q. Bliss
Dr. and Mrs. J. Chester Bradley
Dr. Philip P. Calvert
Mrs. Margaret Cary
Dr. Murray I. Cooper
Mr. Michael S. Efimenko
Mr. and Mrs. Carl W. Fenninger
Miss Louise M. Gartland
Mr. Russell W. Gies
Dr. Newell E. Good
Mr. and Mrs. Harold J. Grant, Jr.
Dr. Ashley B. Gurney
Mrs. Judith Hurwitz
Mr. Fred B. Jacobson

Dr. Karl F. Koopman
Mr. Karl V. Krombein
Mr. Edward J. F. Marx
Mr. and Mrs. Frank McDermott
Mr. Carl F. W. Muesebeck
Mr. and Mrs. Maurice E. Phillips
Dr. Kenneth W. Prescott
Mr. and Mrs. James A. G. Rehn
Dr. and Mrs. Avery E. Richmond
Mr. George S. Rigby
Miss Grace Ridings
Dr. Selwyn S. Roback
Mr. Curtis W. Sabrosky
Dr. Reece I. Sailer
Dr. John B. Schmitt
Dr. Rudolf G. Schmieder
Mr. Richard F. Sivel
Dr. and Mrs. Neal A. Weber
Mr. and Mrs. Arthur B. Wells
Mr. Henry T. Yost

Addendum

ENTOMOLOGICAL NEWS was unable to restrain itself from taking up valuable page space to tell about the Centennial Celebration of the Society to which it owes its existence. And if the NEWS is a creature of the Society, the reverse is likewise true, for the NEWS is a chief reason for the existence of the Society—publication of research. Not as old or as dignified as the "TRANSACTIONS," which date back to the beginnings, it has yet attained its "three score years and ten" in good health, and with a large and growing circulation. It is proud to belong to that triumvirate of publications, including also the "MEMOIRS," whose undiminished importance in the entomological world attests the vitality of the Society.

Thus we are convinced that the Society's Centennial is a truly significant entomological event. This idea finds support in the success of our Celebration, as evinced particularly by the presence of renowned entomologists who journeyed from a distance in order to attend. There were, for example, Drs. J. C. Bradley and C. P. Alexander, and other members of the panel, as well as that eminent group from the Nation's capital (Gurney, Krombein, Muesebeck, Sabrosky and Sailer) who were so good as to get up very early in the morning in order to drive over and spend the whole day with us. To these and to all our other loyal friends who participated, our heartfelt thanks!

A Synonymical List of American Himantariidae, with a Generic Key and Description of a New Genus (Chilopoda: Geophilomorpha: Himantariidae)

By Ralph E. Crabill, Jr., U. S. National Museum, Smithsonian Institution, Washington, D. C.

We understand less today about the world fauna of the Himantariidae than about that of any other major geophilomorph family. With the exception of the southwestern European and western North African himantariids, which have been revised at least twice (1, 4), our knowledge of virtually all of the remaining species is nearly limited to the descriptions of new species and elucidation of higher categories. Almost nothing is known of intraspecific variability, or of the geographical distribution of species, while much of the generic framework of the family is admittedly preliminary and certainly transitional.

Until Professor Chamberlin began his investigations of the group in this century, disclosing for the first time the previously unsuspected presence of a possibly rich and evidently highly endemic fauna in the New World, it was not believed that there was any significant concentration of species and genera outside of the Mediterranean perimeter.

Apart from the circum-Mediterranean fauna, a very few species are known today from the more eastern Old World tropics and northern subtropics, e.g. from coastal Africa, India, southeastern Asia, Japan and Korea. In addition, a relatively larger number of species and genera in recent years has been described from northern South America and Mexico, but especially from western North America. It is likely that these exceedingly long, ribbon-like centipedes are not actually as uncommon as such evidence suggests. They are probably rather abundant in the tropical and especially subtropical areas of eastern Asia and of the Americas. It is not unreasonable to suspect that owing to their retiring habits and well-known inclination to burrow in the ground the animals simply are not being collected very often.

The earliest *unquestionable* North American himantariids were described by H. C. Wood in 1862; they were *laticeps* and *taeniopsis,* both originally referred to *Strigamia.* The Texan *laticeps,* which is the type-species of *Gosiphilus,* q.v., is still preserved in the Museum of Comparative Zoology at Harvard University (No. TC-5(867)); *taeniopsis,* however, remains in question. The type is apparently lost, and its specific identity and generic assignment are uncertain.[1]

Today the roster of described forms is comparatively long and is growing. Undoubtedly some of the generic and specific names listed at the end of this paper will be submerged as we learn more about intraspecific variability and the systematic fabric of the whole group.

EMPHEROZOSTER, new genus

Like nearly all of the American genera, *Empherozoster* has a diastemate 2nd maxillary coxosternum,[2] lacks major paratergites, ultimate leg pretarsi, and special sternital pouches and fossulae.[3] Additional important diagnostic characters are the following: *intercalary* paratergites absent except on the ultimate pedal segment; coxopleura ventrally and dorsally cavitate, the pores cryptic; pore-fields present on sternites 2 through the penultimate; prosternal sclerotic lines (chitin lines) absent, i.e., not passing toward and meeting the prehensorial condyles (see Note A); prehensorial ungular basal denticle absent; antennae not flattened nor distally attenuate, excluding the first, the basal articles compressed laterally; labrum deeply embayed and centrally completely incised; mandibular pectinate lamellae numerous; 1st maxillary lappets entirely absent; ultimate pedal

[1] The stated type locality, Georgia, is probably incorrect. Wood subsequently admitted that owing to a confusion in vial labels, some of his species described as Georgian were actually Californian.

[2] Hence belongs to the subfamily Himantariinae (= tribe Himantariini, auctt.).

[3] For an effective understanding of most of the terms and criteria employed here the reader is referred to the superb 1909 paper by Chalande and Ribaut, which stands as one of the clearest and most detailed synthetic treatments of a restricted group of chilopods.

sternite much longer than its width at midlength; ultimate pedal pretergite flanked by and separated by sutures from very large intercalary pleurites; all stigmopleurites discrete, i.e., not fused with associated tergites or intercalary pleurites; possibly differing from all known genera in possessing a distinct pair of terminal (or anal) pores.

Empherozoster seems most like *Garriscaphus* and *Gosiphilus,* for in all three: 1) *major* paratergites and ultimate pretarsi are absent; 2) the coxopleura are cavitate or fossulate, their pores essentially cryptic, not uniformly dispersed over the exposed surface; 3) pore-fields occur on the rear body sternites as well as on those of the middle and anterior body thirds. Important distinctions between the new genus and *Garriscaphus* appear to include the following. *Garriscaphus:* prehensorial ungula with a distinct but small basal denticle; ultimate sternite broad; body constricted behind the head; coxopleural pores "along border of sternite" (and tergite?); anal pores absent?. *Empherozoster:* ungula without basal denticle; ultimate sternite long and narrow; body not constricted behind head; coxopleural pores concealed ventrally in pits, not in elongate fossulae, dorsally in weakly defined pits; anal pores present.

The new genus seems most like the apparently (see Note C) widely dispersed *Gosiphilus,* at least differing as follows. *Gosiphilus:* intercalary paratergites present at least on anterior segments in all specimens known to me; prosternal sclerotic lines prominent in most, meeting the condyles (see Note A); ultimate pedal sternite often much broader than long; antennae in most proximally flattened and distally attenuate, in some proximally subcylindrical; 1st maxillary lappets present, at least in some and probably in all; anal pores absent in the type and in all specimens known to me. *Empherozoster: intercalary* paratergites absent; prosternal sclerotic lines absent, i.e., not passing across prosternum to meet condyles; ultimate pedal sternite longer than width at midlength, comparatively narrow; antennae proximally compressed laterally, these articles distinctly longer than wide, distally not attenuate; 1st maxillary lappets absent; anal pores present.

Apparently the most striking characters of *Empherozoster* are the peculiar antennae, the lack of *intercalary* paratergites, the lack of 1st maxillary lappets, and the presence of anal pores. Until discovery of *antaeus* it was assumed that anal pores were absent throughout the Himantariidae. The intercalary paratergites, not to be confused with *major* paratergites (see Attems 1929, Chalande and Ribaut 1909), occur in every specimen of North American himantariid that I have seen. It is interesting to note that Verhoeff specifically mentions their absence in his Bolivian species (23, p. 126).

It would be desirable obviously to be able to employ many other important characters as well. Most have been extensively discussed and lucidly figured by Chalande and Ribaut (4); unfortunately subsequent authors have not always taken full advantage of their exemplary contribution, so that a fuller and more confident comparative treatment is not possible at this time.

Type-species: *Empherozoster antaeus*, new species. (Original designation and monotypic).

Empherozoster antaeus, new species

Holotype: ♀. New Mexico, Eddy County, Carlsbad Caverns National Park, Spider Cave; from dry silt beds about 100 feet inside entrance. December 10, 1958; James K. Baker, leg. U. S. National Museum Myriapod Collection, No. 2529.

INTRODUCTORY. Length, 43 mm. Pedal segments, 63. Color: antennae, cephalic plate, prehensorial segment, basal plate light sordid yellow to tan-yellow; tergites, pleurites, legs, sternites pale sordid yellow to yellowish-white.

ANTENNAE (fig. 1). Length, 3.2 mm. Shape: distally not attenuate; articles 2–5 compressed laterally (not depressed dorso-ventrally), each distinctly much longer than wide; articles 6–14 each essentially cylindrical in cross section, not flattened or compressed, each slightly longer than wide; articles 11–13 submoniliform, the 14th much longer than wide. Setae: articles 1–5 sparsely clothed with short setae; articles 6–14 densely, uniformly clothed with very short straight setae. Ultimate article: on each side just posterior to midlength with an ovate depres-

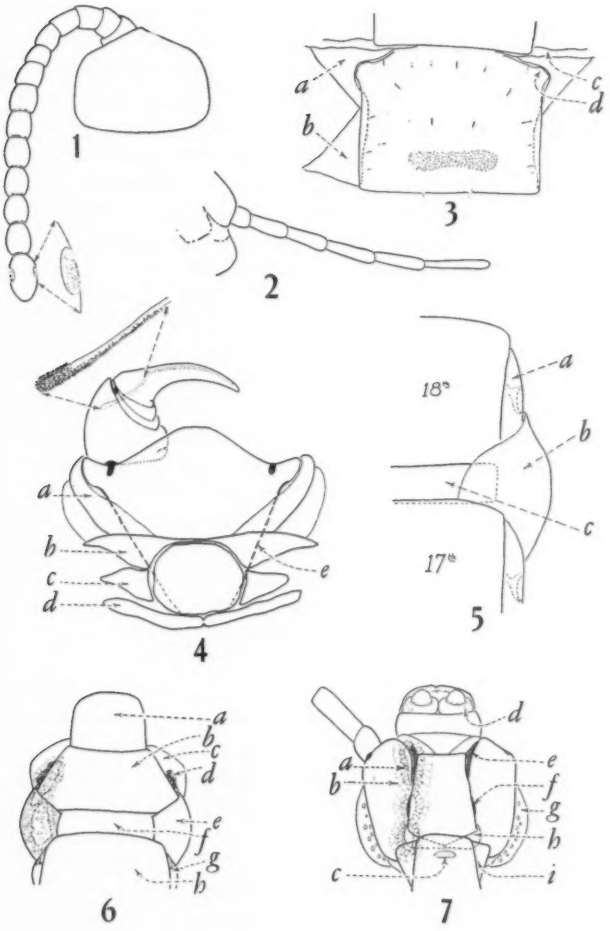
sion, this densely packed with short, thick, apically blunt modified setae (chemorectors?). CEPHALIC PLATE (fig. 1). Length, 0.83 mm.; width 1.24 mm. Shape: antero-lateral margins meeting in an obtuse angle to form a pointed rostrum; sides slightly diverging posteriorly; rear corners rounded; posterior margin straight and slightly overlapping the basal plate. Clothed very sparsely with short pale setae. Uniformly finely areolate; without sutures or sulci; frontal plate not discernibly discrete (even by transmitted light). Prebasal plate apparently absent. CLYPEUS (fig. 8). Paraclypeal sutures present but very obscure. Transbuccal sutures absent. Anterior portion of inner edge of each bucca strongly sclerotized to form an elongate plate whose inner edge is elevated into a short ridge. Clypeus vaguely divided into an anterior coarsely areolate and a posterior very smoothly areolate portion. Setae rather short and thick, disposed as shown. Entire lower margin of clypeus bordering the labrum developed into a strongly sclerotized band, this concolorous with labrum and much paler than remainder of clypeus. LABRUM (fig. 8). Completely separated from clypeus by a membranous strip, this is broad laterally but much narrower medially. Lateral labral extensions very narrow, only slightly indented at points of articulation with the fulturae. Central embayment deep and broad, the diastema between the two central teeth essentially dividing the labrum into right and left halves. Teeth: right, 9; left 9 or 10; each strong, well sclerotized, concolorous with rest of labrum. MANDIBLE. With one deeply pigmented dentate lamella, its long axis at a slight angle to the distal mandibular edge, occupying slightly less than one-fourth of the width of the distal mandibular edge, with 7 dark, strong, blunt teeth and 1 or 2 hyaline weak teeth. With 10 well developed pectinate lamellae, the long axis of each approximately perpendicular to the distal mandibular edge, their teeth hyaline, with parallel sides, on each lamella decreasing in length, the longest lamellae with 20–24 such teeth. FIRST MAXILLAE (fig. 9). Telopodite distinctly bipartite, entirely without lappets or vestiges thereof. Medial lobes separated by a deep, narrow cleft that cuts the coxosternum very deeply; each lobe very indis-

tinctly separated from coxosternum; each with a hyaline, nipple-like distal extension. Coxosternum medially very weakly areolate and weakly sclerotized, almost membranous; entirely without lappets. SECOND MAXILLAE (fig. 9). Anterior margin with a deep diastema, without a midlongitudinal sulcus or groove or any other indication of midlongitudinal division. Pore openings lateral, subsemicircular, very weakly defined. Setae rather robust and short; antero-medial to each pore opening with a small group of short conical alveolate sensory cones (modified setae). Telopodite dorsally and ventrally with rather robust setae; first article bicondylic; terminal claw robust, with 2 stout basal spurs, apically flat and rounded, inner surface broad and shallowly concave, the concave surface not visible from ventral aspect, being directed dorso-anteriorly. PROSTERNUM (fig. 4). Exposed portion very short and wide, the rear concealed parts extending posteriorly to level of rear of first pedal sternite. Anteriorly not denticulate or diastemate. Subcondylic sclerotic lines (chitin lines) absent, that is, not extend-

---

Empherozoster antacus, holotype. Figs. 1–7

1. Cephalic plate and left antenna; dorsal. Setae deleted. Inner patch of sensilla of 14th article shown *in situ* and enlarged.
2. Left ultimate leg; ventral. Setae deleted.
3. 4th pedal sternite; ventral. Setae shown. a, procoxal pleurite. b, metacoxal pleurite. c, intercalary sternite. d, slight extension of sternite passing under procoxal pleurite.
4. Prehensorial segment and adjacent parts; ventral. Setae deleted. Poison calyx shown *in situ* and enlarged. a, pleurite. b, 1st pedal procoxal pleurite. c, 1st pedal metacoxal pleurite. d, intercalary sternite. e, concealed margin of posterior prosternal extension.
5. 17th and 18th pedal tergites and adjacent sclerites; dorsal. a, stigmopleurite. b, intercalary pleurite. c, intercalary tergite (or pretergite), lateral edge concealed beneath pleurite. Setae deleted.
6. Posterior end of body; dorsal. a, postpedal tergum. b, ultimate pedal tergite. c, exposed part of coxopleuron. d, exposed portion of rear coxopleural pit. e, intercalary pleurite of ultimate pedal pretergite. f, ultimate pedal pretergite. g, penultimate pedal stigmopleurite. h, penultimate pedal tergite.
7. Posterior end of body; ventral. Setae deleted. a, concealed pore-canals of rear pore-pit. b, concealed glands of rear pore-pit. c, pore-field of penultimate pedal sternite. d, concealed terminal (or anal) pore, lying dorsal to gonopod. e, exposed part of rear pore-pit. f, exposed part of middle pore-pit. g, undersurface of right ultimate pleurite of pretergite, showing pore-openings. h, ultimate pedal presternite. i, penultimate pedal metacoxal pleurite.

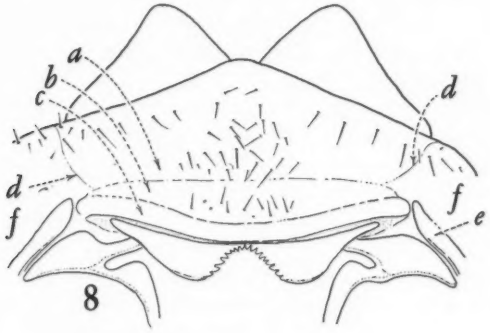


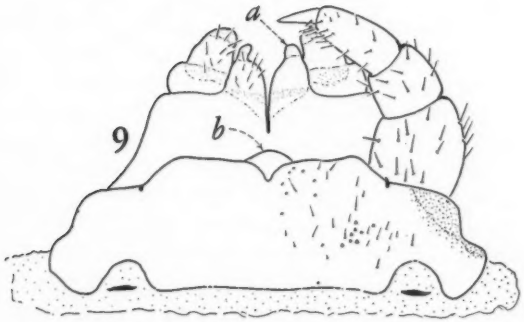
Figs. 1-7

ing across corner of prosternum toward and connecting with condyles. Ventral surface without sutures or grooves; uniformly finely, granularly areolate; uniformly very sparsely clothed with short setae. PREHENSORS (fig. 4). Not attaining frontal margin of head when closed. Ventral edge of ungula smooth, not serrulate; inner surface broad and shallowly concave, the concave surface not visible from ventral aspect, directed dorso-anteriorly; base of ungula (claw) without a denticle. Poison calyx extremely elongate, extending into trochanteroprefemur from proximal extremity of blade proper; poison canal opening on outer surface of blade just short of tip; outlines of poison gland extremely vague, not traceable with precision, apparently passing out of telopodite into prehensorial segment (dorsal to prosternum). Trochanteroprefemur ventrally sparsely but dorsally densely setose. Tibioid and femuroid without denticles.

TERGITES (fig. 5). Basal plate very broad, not suturate or grooved, its anterior margin beneath overhanging cephalic plate. Remaining tergites (except ultimate pedal tergite) as follows. Setae very sparse, minute; surface finely granularly areolate. The large intercalary pleurites reflected dorsally to cover outer corner of each major tergite and outer end of each intercalary tergite, the latter entirely without primary or secondary paratergites (preparatergites). An occasional tergite very indistinctly bisulcate, i.e., paired longitudinal sulci evidently present but extremely obscure. PLEURITES. Major and intercalary paratergites entirely absent. Stigmopleurites discrete, i.e., not fused with adjacent tergites or intercalary pleurites; penultimate pedal stigmopleurite similarly discrete. Spiracles of anterior third of body broadly elliptical, their long axes nearly horizontal, i.e., nearly parallel with the long axis of the body. STERNITES (fig. 3). Not suturate or sulcate; without stigma-like pouches or pits, depressions or similar special fossae. Sternites of anterior third of body somewhat wider than long, thereafter becoming longer and narrower; those on posterior third of body with long dimension greater than width at midlength, i.e., essentially longer than wide. Pedal sternites 2 through the

penultimate each with a pronounced pore-field; each pore-field very thin (antero-posteriorly) and extremely wide (from side to side), none is raised or discernibly depressed. Sternital setae very sparse, minute. LEGS. Dorsal orange articular condyles





Empherozoster antaeus, holotype. Figs. 8, 9

8. Clypeus, labrum and adjacent parts; pentral. All but antennal setae shown. a, anterior portion of clypeus, areolation granular, pronounced. b, posterior portion of clypeus, areolation weak, vague. c, strongly sclerotized clypeal strip. d, paraclypeal sutures. e, sclerotized inner edge of left bucca. f, bucca.
9. 1st and 2nd maxillae; ventral. All setae shown on left side of 2nd maxillae and on right side of 1st maxillae. 1st maxillae somewhat displaced anteriorly from original position. a, nipple-like extension of medial lobes of 1st maxillae (possibly artifacts). b, posterior medial, free margin of 1st maxillae, displaced anteriorly.

contrasting notably with yellowish-white leg surfaces. Essentially glabrous. Pretarsi relatively long, compressed laterally, deep red-brown in color, narrowly concave beneath; pretarsal accessory claws equal in length, robust and very long, at least two-thirds as long as the associated claw proper.[4]

ULTIMATE PEDAL SEGMENT (figs. 2, 6, 7). Pretergite separated from its huge intercalary pleurites by sutures, these pleurites overlapping each lateral edge of their pretergite and completely concealing the anterior part of each coxopleuron from above. Tergite trapezoidal, very broad, sides strongly convergent posteriorly, the rear margin nearly straight; very sparsely and shortly setose. By contrast the tergum of the postpedal segments is subdensely setose. Presternite with convergent posterior margins, mostly concealed; medially essentially (or actually?) divided. Sternite much longer than width at midlength, its sides slightly convergent, the rear margin nearly straight; sparsely setose. Each coxopleuron elongate, extending forward nearly to base of penultimate leg, largely covered by tergite and pleurites; ventro-posteriorly slightly swollen; each with three ventral subsurface pits, the most anterior of these completely concealed; with two long poorly defined dorsal pits, the posterior of these slightly exposed; with numerous sclerotic gland canals opening into all five pits, gland canals and glands situated in coxopleuron, under sternite and presternite, on underside of pleurites, under lateral and anterior margins of tergite. Legs extremely long and thin, much longer than the penultimates; each with 6 articles distal to the coxopleuron, i.e., with two tarsal articles; pretarsus totally absent; all articles sparsely clothed with short straight setae. POSTPEDAL SEGMENTS (fig. 7). Gonopods completely separated from each other; each consists of two distinct, swollen segments. With a distinct pair of terminal (anal) pores.

(*to be continued*)

[4] The remarkable length of the pretarsal accessory claws is almost certainly significant interspecifically; it is probably a generic character as well. *Gosiphilus* specimens that I have seen, including the type-species, have broader, shorter pretarsi and accessory claws that never attain half the length of the pretarsus.

A New Species of the Genus Chionodes in California (Lepidoptera, Gelechiidae)

By Jerry A. Powell, University of California, Berkeley

During the course of investigations on the early stages of the Xyelidae (Hymenoptera), Donald J. Burdick has discovered larvae of several gelechiid moths which feed in the staminate cones of pines. One of these subsequently has proven to be an undescribed species, and although closely related to *Chionodes johnstoni* Clarke (1947), specimens from two localities are quite consistent in the differing characters. The species is described at this time in order to make the name available for biological studies now in progress.

Chionodes sabinianae, new species

A dark grey moth, flecked with white and with a single, sinuate, white, transverse band on the fore wing at the apical one third of the wing. With the characters of the genus as outlined by Busck (1939).

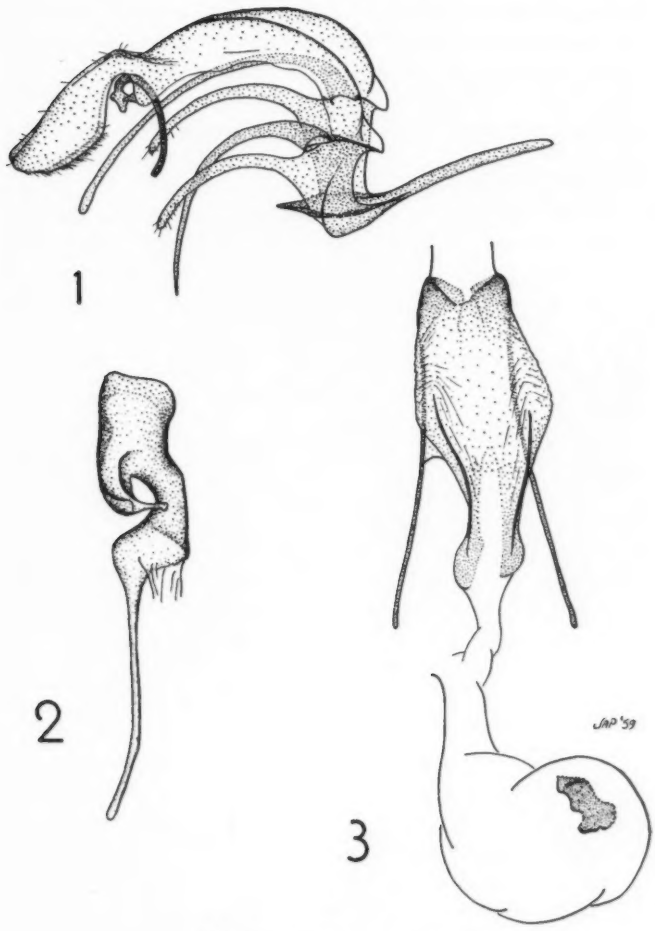
Male: *Labial palpus* predominantly black. Second segment with scattered white scales exteriorly and a pure white tuft at the apex exteriorly; mixed grey and white scales above and interiorly, nearly white on upper half interiorly. Third segment with white scales intermixed especially above and along distal half; with a white tip. *Antenna* black; whitish scales scattered along the length dorsally; the scale rows alternating black and white ventrally; a white tuft at apex of basal segment, more pronounced ventrally. *Head* grey, the scales darker toward apices; face below antennal bases predominantly whitish. *Thorax* grey, the scales darker toward apices; with a bright ochre-yellow tuft posteriorly. *Fore wing* dark grey, the scales whitish on their basal halves, blackish toward apices. Markings on wing as follows: a roundish spot at one third the length of the wing from base on lower fold, margined exteriorly by a black area; another white spot at about the end of the cell, both preceded and followed by black areas; a transverse, white band from apical third on costa to anal angle, curved slightly outward

at middle; two small, white submarginal spots, one at apex and one just below and inside it. Fringe with hairs grey, scales whitish-grey, darker at apices. Wing surface roughened by areas of upturned scales; most pronounced in the random scattered white scales and in the scales which make up the white spots. *Hind wing* light grey, darker toward apical margin. Fringe of whitish hairs. *Legs* whitish, marked with grey. Fore and mid legs with dark grey overscaling above and exteriorly as follows: intermixed black and white on femora; tibiae with three subequal bands separated by raised, yellowish, narrow bands; tarsi black except tufts at apices of first, second and fifth segments. Hind leg with pale grey overscaling exteriorly as follows: tibia with small basal spot, ill-defined blotch before mid spurs, broad band before apical whitish tuft; tarsi except apical tufts on all segments. (The holotype lacks one prothoracic and one metathoracic leg.) *Abdomen* greyish, with dorsal tufts of whitish hairs laterally on first segment and apically on eighth segment. *Genitalia* as in figs. 1, 2 (drawn from paratype). Harpes asymmetrical; right harpe sharp-pointed, left harpe blunt, about one fourth longer than the right. Aedeagus slightly shorter than the remainder of the genitalia, the slender stalk constituting about one half the length; distal end with a finger-like lateral projection which curves around the deeply cleft central portion.

Female: Coloration nearly identical with that of male; tip of abdomen yellowish above. Genitalia as in fig. 3 (drawn from paratype). Signum subrectanglar, irregular in outline, quite large.

Wing expanse: male, 12.2–14.0 mm.; female, 14.3–15.6 mm. (reared specimens).

Holotype male and *allotype female:* Russelman Park, Mt. Diablo, Contra Costa County, CALIFORNIA, April 9, 1958, reared from staminate cones of *Pinus sabiniana,* emerged May 6 and May 9, 1958, (D. J. Burdick), deposited in the collections of



Chionodes sabinianae Powell

Fig. 1. Male genitalia, lateral aspect, aedeagus removed. Fig. 2. Aedeagus, dorsal aspect. Fig. 3. Female genitalia, ventral aspect, anal papillae and posterior apophyses removed.

the California Academy of Sciences, San Francisco. *Paratypes* as follows: 3 ♂♂, Arroyo Mocho, 20 miles south of Livermore, Alameda County, California, April 2, 1957, reared from staminate cones of *Pinus sabiniana,* emerged April 29 to May 14, 1957, (D. J. Burdick); 1 ♂, 4 ♀♀ same data as holotype except emerged May 5 to May 9, 1958, deposited in collections of U. S. National Museum, British Museum, California Insect Survey (University of California, Berkeley), and in author's collection.

The coloration, especially with regard to the extent of white, is variable. Any of the small white spots may be lacking on one or both wings, but the white band is uniform throughout the series studied. Some paratypes show much more extensive white scaling than the holotype and appear more variegated to the naked eye with the black spots prominent on a lighter background.

The species is nearest to *C. johnstoni* Clarke, from which it differs by the shape of the aedeagus (two specimens examined) and by minor differences in the shape of the sclerotization of the eighth segment and signum of the female. In addition, Dr. J. F. Gates Clarke, U. S. National Museum, Washington, D. C., who kindly compared specimens of *sabinianae* with *johnstoni,* states (*in litt.*) that the light areas in *johnstoni* are yellowish in comparison with the white markings of *sabinianae.* He further notes that the upturned scales are absent in *johnstoni,* but that this may be due to the fact that the specimens of *sabinianae* were reared and those of *johnstoni* had flown.

Literature Cited

Busck, A. 1939. Proc. U. S. Nat. Mus. 86 (3064): 563-593.
Clarke, J. F. G. 1947. Jour. Wash. Acad. Sci. 37 (7): 243-254.

A New Genus of Mexican Cerambycidae Related to Crossidius (Coleoptera)

By JOHN A. CHEMSAK,* University of California, Berkeley

The following new genus is proposed for a species originally asigned by Bates to the genus *Crossidius,* but which does not appear to be congeneric with the other Mexican and United States species of that group.

NEOCROSSIDIUS Chemsak, new genus

Body stout, robust. Head with front vertical; antennal tubercles somewhat elevated, acutely angulate; antennae filiform, eleven segmented, longer than the body in the male, eleventh segment long, slightly appendiculate, tapering, shorter than the body in the female; eyes finely granulate, strongly divided, upper lobe small; mandibles small, bifid at apex. Pronotum transverse, rounded, slightly angulate or tuberculate at sides, disk convex, fairly even; scutellum moderate, slightly wider than long, triangular, acutely pointed at apex; prosternal process broad, slightly expanded at apex; mesosternum rather sharply declivous in front, raised from sternum behind; episternum of metathorax moderately broad, parallel. Elytra with surface convex, distinctly costate with two impunctate, slightly raised longitudinal costae on each elytron; pubescence dense, fairly long, suberect; punctation moderate, dense; apices not produced, sinuate-truncate.

Type species: *Crossidius trivittatus* Bates.

This genus can be differentiated from *Crossidius* by the distinct smooth elytral costae, stout form, broader prosternal process, and the more sharply declivous mesosternum. Although Horn (1885) has stated that the type species *Crossidius trivittatus* Bates is closely allied if not identical with *C. humeralis* LeConte, a study of series of both species shows them to be quite distinct. The latter is a true *Crossidius.* The following

* Acknowledgment is given to Dr. E. G. Linsley, University of California, Berkeley, for helpful suggestions.

redescription is offered as a supplement to the original provided by Bates.

Neocrossidius trivittatus (Bates)

Crossidius trivittatus Bates, 1880, Biol. Cent.-Amer., Coleopt., vol. 5, p. 82; Bates, 1885, Biol. Cent.-Amer., Coleopt., vol. 5, p. 327.

Male: From broad, robust, subparallel; color dark testaceous and black or shining black, elytra with three distinct dark longitudinal vittae or at least a sutural stripe, vittae with greenish caste, elytra distinctly costate; appendages, pronotum, and underside black; pale pubescence fine, dense, suberect; antennae very long. *Head* coarsely confluently punctate on vertex, more finely on front, pubescence long, pale, fine; antennae surpassing elytral apices by about four segments, eleventh segment long, appendiculate. *Pronotum* wider than long, broadly rounded with small lateral tubercles; surface convex with trace of small impunctate callus behind middle, punctures dense, moderately coarse, contiguous; pubescence fine, pale, long and erect but not obscuring surface; prosternum barely impressed before coxae, confluently punctured, densely pubescent, prosternal process broad, wider at apex, mesosternal process rather sharply declivous in front, distinctly raised from sternum behind; meso- and metasterna densely, finely punctate, densely pubescent. *Elytra* only about twice as long as broad, slightly wider than pronotum; each elytron with two distinct, slightly raised, impunctate costae, three black vittae present, one on each side at about the middle and another sutural one, sometimes only sutural stripe present, black stripes having faint metallic cast; punctation coarse, dense, sub-confluent at base, becoming finer apically; pubescence long, pale, suberect, longer and erect at base; apices sinuate-truncate. *Legs* fairly short, stout, moderately coarsely, densely punctate, pubescence dense, long, suberect. *Abdomen* finely densely punctate, densely clothed with long fine pale hairs; fifth sternite broadly rounded, slightly emarginate at apex. Length, 12–17 mm.

Female: Antennae short, rarely surpassing apical one-fourth of elytra. Color as in male but may be entirely shining black. Length, 11–16 mm.

Type locality: Mexico.

This species shows an extreme variability with regard to the dark stripes of the elytra, first noted by Bates (1885) in a series collected by Mr. Flohr at El Salto, near Huehuetoca. This same variation is evident in series from Tuxpan, Michoacan, IX–18–57 (H. A. Scullen); Mexico City, D.F., IX–25–57 (R. & K. Dreisbach); and 44 miles N.E. of Durango, Durango, X–19–57 (H. A. Scullen). The extremes are a male with only a dark stripe along the suture, and two females which are entirely submetallic black. Bates indicated that some of his examples had two or three large tawny spots on the thorax, but none of the 19 specimens at hand exhibit this coloration.

LITERATURE CITED

BATES, H. W., 1880–1885. Biol. Cent.-Amer., Coleopt., vol. 5, pp. 82, 327.
HORN, G. H., 1885. Trans. Amer. Ent. Soc., vol. 12, p. 177.

A New Name in the Clerid Genus Lebasiella Spinola (1844)

(Notes on North American Coleoptera, No. 7)

By CHARLES S. PAPP, University of California, Riverside, Cal.

During my recent study of the beetle family Cleridae I discovered the use of the same name for two different species assigned to the same genus. To avoid further taxonomic complications, a new name is introduced for the following reason:

Lebasiella mexicana new name for *L. unimaculata* Pic (in "Neue Cleridae aus der Sammlung des Deutschen Entomologischen Instituts," published in the Beiträge zur Entomologie, Berlin, 1953, Vol. 3, No. 3, p. 332) from Tasco, Mexico. The type specimen is in the collection of the Deutsches Entomologisches Institut, Berlin, Germany. The name *L. unimaculata*

was previously occupied by Pic (in Exchange, 1940, Vol. 56, No. 481, p. 10) for another Mexican species. The type of this species is in the collection of Mr. Maurice Pic, Les Gourreaux par St. Agnan, France.

Lebasiella mexicana (n.n.) is easy to differentiate from *L. unimaculata* Pic (1940) because it is dark metallic blue in color and has a sharp yellow spot on each elytron. Its distribution is restricted to Mexico. Length: 1.0–5.5 mm., an extremely unusual variation in size.

In Pic's description there is no indication of the number of specimens used in the original description.

In the genus *Lebasiella* (occasionally misspelled as Labasiella) Spin. there are 13 species and 2 varieties known, all from the Western Hemisphere: *L. discolor* Kl. from Mexico and Texas; *L. discolor* var. *tibialis* Schnklg. from Mexico and California; *mesosternalis* Schaeff. from Arizona and Mexico; *pallipes* Kl., which ranges from Pennsylvania through Texas to Mexico; *marginella* Chevr. from California and Mexico. Others are restricted to Mexico: *quadrimaculata* Pic, *mexicana* Papp, and *unimaculata* Pic (1940); *bisbinotata* Gorh. occurs in Honduras, as the only Central-American species of this genus. The rest of the species are all from South America: *limbipennis* Chevr., *lineata* Pic, *ruficollis* Pic and *rufic. ab. sinuatelineata* Pic, which are very closely related species all known from Chile; *erythrodera* Spin. from Colombia and *basipennis* Pic. from Argentina.

For students in this genus the following papers are useful: Wolcott: in Publ. Field Mus., Chicago, 1910, 7: 397, and also Wolcott: in Fieldiana (Zool.), 1947, 23(2): 87–88.

Biological Notes on Prochelostoma philadelphi (Robertson) (Hymenoptera, Megachilidae)

By Karl V. Krombein, Entomology Research Divison, Agricultural Research Service, U. S. Department of Agriculture

A moderately large population of this bee nests in abandoned borings of anobiid larvae in an old wooden cowshed in Arlington, Va. The following observations were made in 1954.

Most of the bees present on May 15–16 were males which hovered in front of the boring entrances. A few females were present on these dates and mating was noted. Large numbers of bees were mating on the following week-end. The rather protracted mating took place outside the boring entrance on the surface of the wall. I did not time the matings, but one pair was in copula for at least 5 minutes. There was no courtship and sometimes as many as four males struggled to mate with one female.

Some females began to provision nests the week-end of May 22–23, and a few females were still nesting as late as June 5. When a female laden with pollen and nectar returned to her nest, she quickly entered the boring head first, remained inside for a few seconds presumably to regurgitate the nectar, and then backed out of the boring. Then she immediately backed into the boring to deposit the pollen load from the abdominal scopa. The provisioned cells were separated by thin clay partitions, and the boring entrance was plugged with clay. The females slept in the burrows at night with the abdomen plugging the entrance.

This bee is proterandrous, although there was some overlap in emergence of the two sexes in the entire population. This overlap may have been due to temperature factors, because many nests were shaded the entire day and others were exposed to the sun for periods ranging from 1 to 4 hours. The males apparently emerge first when both sexes are present in a single nest. Six of the nests stored during May, 1954, were marked and the occupants trapped in glass vials when they emerged

in May, 1955, as follows:

Nest 1—2 ♂♂, May 19; 1 ♀, May 21; 4 ♀♀, May 22; 2 ♀♀, May 23
Nest 2—2 ♂♂, May 19; 2 ♂♂, May 20
Nest 3—1 ♂, May 21; 2 ♀♀, May 22; 1 ♀, May 24
Nest 4—3 ♀♀, May 23; 1 ♀, May 24
Nest 5—1 ♀, May 25; 1 ♀, May 26
Nest 6—2 ♀♀, May 26

There is only a single generation a year as indicated by the above data, and also by some 50 specimens in the U. S. National Museum which bear dates of capture ranging from mid-May to mid-June.

Ichneumon koebelei Swezey, Selection of Lectotype (Hymenoptera—Ichneumonidae)

By Gerd H. Heinrich, Dryden, Maine

The original description of *Ichneumon koebelei* (Report of Work of the Experiment Station of the Hawaiian Planter's Association, Bull. No. 7, Honolulu, Hawaii, November 1909, p. 30/31) contains no statement concerning the designation and location of a holotype. There are two specimens (♀♂) in the collection of the Smithsonian Institution identified by the author as *Ichneumon koebelei* and labeled as "cotypes" (type no. 11771). I designate one of them, the female, as lectotype of the species.

Sinea diadema Fabr. (Hemiptera: Reduviidae) Biting a Human

By W. W. Judd, Department of Zoology, University of Western Ontario, London, Ontario

In the autumn of 1958 a man reported that while driving a car through Ilderton, Ontario on September 28 he felt a sharp, stinging sensation in the skin on the outside of his right thigh. When the car was stopped examination of the affected area of the skin showed a small puncture hole that exuded blood for a short while. No swelling or change in colour was seen in the surrounding skin. The pain lasted for half an hour. The insect that caused the bite was found in the clothing at the site of the bite. It was crushed but was recognizable as the assassin bug, *Sinea diadema* Fabr., as identified by keys in Blatchley (1926) and Britton (1923). The insect had evidently crawled or fallen into the clothing.

Sinea diadema is an assassin bug which is common in southern Ontario and which occurs frequently in autumn on flowers of Compositae where it feeds on plant lice and other insect prey (Blatchley, 1926; Miller, 1956). Herms (1939) includes this species in his key to predaceous Reduviidae likely to be of medical importance.

References

Blatchley, W. S. 1926. Heteroptera or true bugs of eastern North America. Nature Publ. Co., Indianapolis.

Britton, W. E. 1923. The Hemiptera or sucking insects of Connecticut. Conn. State Geol. and Natural Hist. Surv., Bull. 34.

Herms, W. B. 1939. Medical entomology. Macmillan Co., New York.

Miller, N. C. E. 1956. The biology of the Heteroptera. Leonard Hill Ltd., London.

Review

A CENTURY OF BIOLOGICAL RESEARCH by Harlow B. Mills *et al.* Bull. Ill. Nat. Hist. Survey 27(2) 85–234, illus. Urbana, Illinois, Dec. 1958.

This is a series of articles describing the history and the accomplishments of the Natural History Survey Division of the State of Illinois. The Survey Division is a large and active organization engaged in research and publication in a number of biological fields. Although a separate agency, it is housed in a fine modern building on the campus of the University of Illinois, to the mutual benefit of the Survey and the University, and two of its entomologists, Doctors DECKER and Ross are professors in the Graduate College. The present publication seeks to tell how this organization came into being and how it developed to its present stature. Each of the articles is of absorbing interest, and together they represent a major contribution to the history of biological, particularly entomological, research in America.

The first article "From 1858 to 1958," by Dr. HARLOW B. MILLS, Chief of the Survey, presents a fascinating account, set in historical perspective. There is S. A. FORBES, as a boy of fourteen at the Lincoln-Douglas debate in 1858, "who wormed his way to the front of the crowd and gained some renown by vocally taking issue with Douglas at one point in this historically climactic discussion." In 1858, the Natural History Society of Illinois was formed at the Illinois State Normal University and there undertook to develop a museum and a library. In 1867 it accepted State support and since then has undergone various changes in name and organization, as well as in location by removal from Normal to Urbana. Its history reflects the initiative and personalities of outstanding leaders: S. A. FORBES, appointed curator in 1872 (in addition to being State Entomologist), and remaining in charge until 1930; T. H. FRISON who served from 1931–45, and under whom the new Natural Resources Building was built (1940) and other advances made (in faunistic work, wild-life research, etc.); and finally the present chief, H. B. MILLS.

A second article, by G. C. DECKER, "Economic Entomology," is devoted to the history of insect control in Illinois. Again, we are fascinated by learning just how these problems appeared to the early entomologists, and, through the years beginning with the 1850's, what attempts were made to solve them. Numerous quotations from contemporary sources help to give a vivid picture. For the future, the urgent need appears to be "a return to the basic study of insect biology and ecology," so that new methods may be worked out that will supplant present reliance on chemical control.

The history of Faunistic Surveys is treated by H. H. Ross, beginning with the earliest period, 1850 to about 1870. With the beginning of State support, and the appointment of a State Entomologist there began a "Period of Expansion," accelerated also by removal to Urbana in 1885. Much later, with the appointment of T. H. FRISON as Systematic Entomologist in 1923, there was a resurgence in faunistic activity bringing on the present "Period of Specialization." In 1931 FRISON became chief, and H. H. Ross was appointed Systematic Entomologist. Since then other reorganizations have taken place with expansion of the work in insects, and in other groups as well. Since 1947 Ross has been in charge of the "Section of Faunistic Surveys and Insect Identification." The remainder of this article provides brief histories of taxonomic work done in each of the principal orders or families of insects.

The remaining articles have less to do with insects; they are an Aquatic Biology, Wildlife Research, Publication and Public Relations, and the Library. Finally, there is a list of over 200 former technical employees as well as a list of references.—R. G. SCHMIEDER

EXCHANGES

This column is intended only for wants and exchanges, not for advertisements of goods for sale or services rendered. Notices not exceeding three lines free to subscribers.

These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and, only when necessary those at the top (being longest in) are discontinued.

Bembicini and Stizini (Hym., Sphec.) of New World wanted for revis. study. Will return upon request or at end of project. James E. Gillaspy, Dept. of Zoology, Univ. Texas, Austin 12, Texas.

Agapema galbina. Will exchange cocoons of this moth for nature books. E. Frizzell, Route 4, Box 96, San Benito, Texas.

Tenebrionidae of the World wanted, in exchange for insects of Argentina and neighboring countries. Horacio J. Molinari, Av. Lib. Gral San Martin 55, Acassuso (Buenos Aires), Rep. Argentina.

Butterflies. Wish to exchange specimens for Japanese species. Please write to Ichiro Nakamura (Boy, age 16), 26 Aza-Nichiyama Obayashi Takarazuka-shi, Hyogo-Ken, Japan.

Phasmidae of nearctic area desired alive. Purchase or trade, drawing on large stock of major orders, worldwide. Domminck J. Pirone, Dept. Entomology, Cornell University, Ithaca, N. Y.

Nitidulidae and Rhizophagidae wanted in exchange for European beetles of all families. O. Marek, Zămberk 797, Czechoslovakia.

Wanted and Needed. We are compiling a history of entomology, and particularly, at present, of the amateur insect clubs that flourished 50 to 75 years ago. Will you who have knowledge of such early clubs or societies advise me, giving facts on the time of existence, members, etc., which you may have. J. J. Davis, Dept. of Entomology, Purdue University, Lafayette, Indiana.

Important Mosquito Works

MOSQUITO ATLAS. Part I. The Nearctic Anopheles, important malarial vectors of the Americas, and Aedes aegypti and Culex quinquefasciata

MOSQUITO ATLAS. Part II. The more important malaria vectors of the Old World: Europe, Asia, Africa and South Pacific region

By Edward S. Ross and H. Radclyffe Roberts

Price, 60 cents each (U. S. Currency) with order, postpaid within the United States; 65 cents, foreign.

KEYS TO THE ANOPHELINE MOSQUITOES OF THE WORLD

With notes on their Identification, Distribution, Biology and Relation to Malaria. By Paul F. Russell, Lloyd E. Rozeboom and Alan Stone

Mailed on receipt of price, $2.00 U. S. Currency. Foreign Delivery $2.10.

For sale by the American Entomological Society, 1900 Race Street, Philadelphia 3, Pa., U. S. A.

Just Published

New Classified Price Lists

Available separates from the TRANSACTIONS OF THE AMERICAN ENTOMOLOGICAL SOCIETY and ENTOMOLOGICAL NEWS, and all titles of the Society's MEMOIRS have been catalogued by author in twelve special price lists in the following categories:

Coleoptera	**Neuroptera and Smaller Orders**
Diptera	**Odonata**
Hemiptera	**Orthoptera-Dermaptera**
Hymenoptera	**Arachnida and Other Classes**
Lepidoptera	**Bibliography-Biography**
Memoirs	**General**

Lists will be mailed free upon request. Please state specifically which list or lists you require.

The American Entomological Society
1900 RACE STREET
PHILADELPHIA 3, PENNSYLVANIA

Just Published

MEMOIRS OF THE AMERICAN ENTOMOLOGICAL SOCIETY

Number 16

A TAXONOMIC STUDY OF THE NORTH AMERICAN LICININI WITH NOTES ON THE OLD WORLD SPECIES OF THE GENUS DIPLOCHEILA BRULLE (COLEOPTERA)

By George E. Ball

258 pages of text, 75 tables, 3 diagrams,
15 plates, table of contents and index

This monograph considers the geographical variation, relationships, evolution and taxonomy of the carabid tribe Licinini. A general treatment, explaining the taxonomic approach used, definition of terms, criteria for delimiting species and subspecies, etc., precedes the systematic position. The genera *Diplocheila* (subgenera *Diplocheila, Neorembus, Isorembus*), *Dicaelus* (subgenera *Paradicaelus, Dicaelus, Liodicaelus*) and *Badister* (subgenera *Badister, Trimorphus, Baudia*) are each treated in some detail. Keys to the genera and species are given throughout as well as a description (or diagnostic notes), variation, distribution and frequently locality records for each of the forms treated. The phylogeny and zoogeography of each genus are discussed in a separate section. Variation of mensurable characters is treated in the 75 tables. Fifteen plates depict structural (including genitalia) and variational features of the species discussed.

Price $10.00 postpaid

THE AMERICAN ENTOMOLOGICAL SOCIETY

1900 Race Street, Philadelphia 3, Penna., U.S.A.